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FARMS PARTICIPATING IN THE AGRI-ENVIRONMENTAL-CLIMATE MEASURE AGAINST A BACKGROUND OF OTHER FARMS

Key words: farm, Agri-environmental-climate Measure in the RDP 2014-2020, farm income per 1 FWU

ABSTRACT. The progressive effects of climate change and persistent negative trends in the state of the natural environment of many rural areas in the European Union and throughout the world are reasons for which there is an urgent need to carry out activities with respect to the protection of climate and natural environment in the agricultural sector. The objective of this article is to describe both the state of spending funds and farms belonging to beneficiaries of the Agri-environmental-climate The aim of the study was to measure and assess the functioning of farms belonging to beneficiaries of the RDP 2014-2020 measure against a background of other farms in 2017. A comparative analysis of farms belonging to beneficiaries and other farms included farms with field crops, mixed production and animals fed with roughage, as they play an important role in Polish agriculture. As part of the Measure, more than half of the farms use support under Packages 1 and 2. The share of farms implementing 3 or more packages at a time was much lower. The analysis carried out shows, inter alia, that farms belonging to beneficiaries are characterised by a worse economic situation expressed by income per 1 FWU (Family Work Unit).

INTRODUCTION

In the European Union (EU), the progressive effects of climate change and persistent negative trends in the state of the natural environment of many rural areas are the reasons for which there is an urgent need to carry out activities with respect to the protection of the climate and natural environment[1] in the agricultural sector. In this context, what is particularly important is the EU Adaptation Strategy of 2013 and priorities 4 and 5 of the current European Union Common Agricultural Policy (EU CAP) 2014-2020, which apply to the need to restore, protect and improve agriculture- and forestry-related ecosystems as well as support effective resource management and make the transition to a low-carbon and climate-resilient economy in the agricultural sector smooth, among others. [Regulation

[1] It is estimated that in Europe in 2017 there were 106 extreme weather events in total (hurricanes, floodings, droughts). In 1980, 1989, 1999, there were 53, 62 and 77, respectively. [NatCatService 2019]. In the EU, the farmland bird index in the years 1990-2014 decreased by 31.5%, in the years 2000-2014 by 15.7% and the population of wild bees and meadow butterflies is still decreasing [EC 2014, COM (2015) 478 final, data of Eurostat].

No 1305/2013, 17 December 2013, COM(2018) 773 final]. Existing arrangements of the European Commission (EC) on major objectives of the EU CAP post 2020 indicating the need to further strengthen the role of the agricultural sector with regard to the protection of the climate and natural environment in rural areas and on the EU's pursuit of climate neutrality by 2050 are equally important [COM(2017) 713 final, COM(2018) 392 final]. In light of the climate and natural environment, the EC's approach is deemed particularly important. However, it is a challenge to plan additional measures in this area without a farm's loss of achieved economic effects, and consequently without limiting their further development opportunities.

In Poland, particular measures for the protection of the climate and natural environment are currently taken by 79,490 farms, as beneficiaries of the Agri-environmental-climate Measure implemented under the Rural Development Programme for 2014-2020 (RDP 2014-2020) on an area of 1,540,887 ha. The objective of this article is to describe both the state of spending funds and farms benefitting from the Agri-environmental-climate Measure under the RDP 2014-2020 and assess the functioning of farms benefitting from this measure against a background of other farms with the same production type, which kept accounts for the Polish FADN in 2017.

MATERIAL AND METHODS

To achieve the objective, the paper was divided into two subchapters. The first subchapter describes both the state of spending funds and farms benefitting from the Agri--environmental-climate measure (Measure) under the RDP 2014-2020 based on data from the Agency for the Restructuring and Modernisation of Agriculture (ARMA) as of 31.12.2017[2]. As part of the Measure, the following have been identified: Package 1. "Sustainable farming", Package 2. "Protection of soils and waters', Package 3. "Preservation of orchards of traditional fruit tree varieties", Package 4. "Valuable habitats and endangered bird species in Natura 2000 sites", package 5. "Valuable habitats outside Natura 2000 sites", Package 6. "Preservation of endangered genetic resources of plants in agriculture" and Package 7. "Preservation of endangered genetic resources of animals in agriculture" [MRiRW 2016]. What is more, the paper also identified Package 8, which is composed of beneficiaries of Package 3. "Extensive permanent farmland" and Package 9. "Buffer zones", due to commitments as part of the Agri-environmental programme under the RDP 2007-2013.

The second subchapter comprises of an assessment of the functioning of farms as beneficiaries of the Measure against a background of other farms with the same production type keeping accounts for the Polish FADN in 2017. Among beneficiary farms, the following were identified: 559 farms with field crops, 398 farms with animals fed with roughage and 436 farms with mixed production, and among other farms – 3,598 farms with field crops, 2,887 farms with animals fed with roughage and 2,987 farms with mixed production.

The comparative analysis of beneficiary farms and others were farms with field crops, mixed production and animals fed with roughage, as they play an important role in Polish

2 For the time being, this is the most up-to-date data provided to the authors by the Ministry of Agriculture and Rural Development (MARD) and ARMA.

agriculture[3]. The paper used the information on their: production potential (utilised agricultural area in ha, share of leased land in this area (%), share of farms located in LFAs (%), total labour inputs per 1 ha of UAA in hours, and capital value (thousand PLN), production intensity (total costs, including direct costs per 1 ha of UAA (thousand PLN/ha of UAA), land productivity (thousand PLN/ha of UAA), labour productivity (thousand PLN/AWU) and capital productivity (%), farm income per 1 FWU (thousand PLN) and share of operating subsidies in this income (%), including subsidies received as part of the Measure under the RDP 2014-2020 and the net investment rate (%) determined as a ratio of net investments to depreciation.

THE STATE OF SPENDING FUNDS AND A DESCRIPTION OF BENEFICIARIES OF THE AGRI-ENVIRONMENTAL-CLIMATE MEASURE UNDER THE RDP 2014-2020

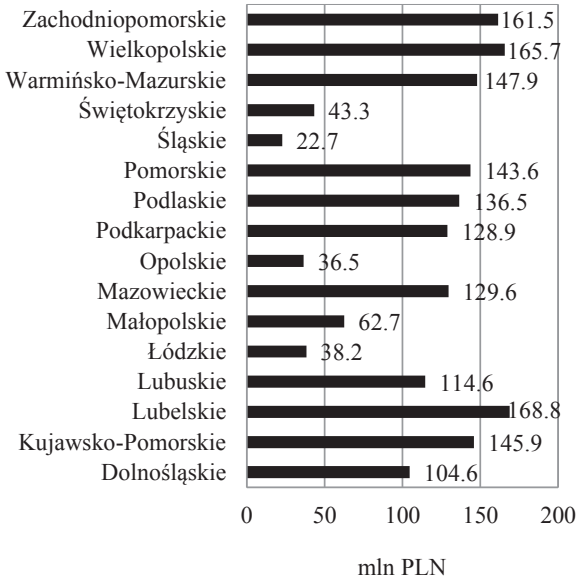

Figure 1. State of spending funds broken down by voivodships on implementing the Agri-environmental-climate Measure under the RDP 2014-2020 (as of 31.12.2017)

Source: own study based on data from the MARD [MRiRW 2018b]

So far, the state of spending funds on implementing the Measure has been PLN 1,750.98 million, including PLN 1,285.88 million for commitments under the RDP 2007-2013. The remaining funds of PLN 465.1 million were spent as part of new commitments under the RDP 2014-2020 [ARiMR 2018]. It must be stressed that the share of funds spent, so far, on implementing the Measure in total funds allocated for its implementation under the RDP 2014-2020 has amounted to 29.8% [MRiRW 2018a].

As part of the Measure, the greatest support has, so far, been obtained by beneficiaries from the Lubelskie, Wielkopolskie and Zachodniopomorskie Voivodships - PLN 168.83, 165.67 and 161.49 million, respectively, while the lowest by those from the Śląskie, Opolskie and Łódzkie Voivodships - PLN 22.72, 36.55 and 38.25 million, respectively (Figure 1). This situation has been reflected in the % share in the area where

[3] The share of farms with field crops in the structure of farms identified by farming types is 56.5%, those with mixed production – 22.5% and those with animals fed with roughage – 11% [GUS 2017].

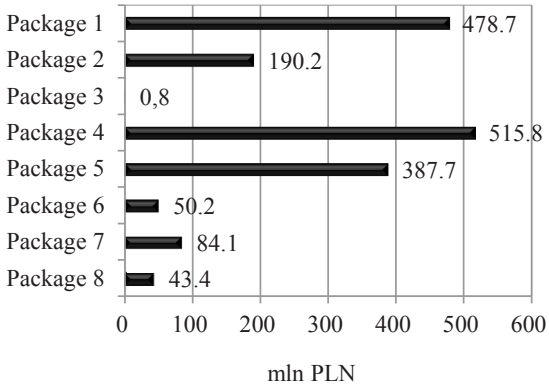

Figure 2. State of spending funds on implementing the Agri-environmental-climate Measure under the RDP 2014-2020 (as of 31.12.2017)

Source: own study based on the data from the MARD [MRiRW 2018b]

the Measure has been implemented in the total area covered by support under direct payments. In fact, it turned out that in the Lubelskie, Wielkopolskie and Zachodniopomorskie Voivodships, in total, this share was 18.4% and in the Śląskie, Opolskie and Łódzkie Voivodships – 6.5%, in total [MRiRW 2017].

So far, most funds under the Measure have respectively been spent on: Package 4 – PLN 515.82 million, Package 1 – PLN 478.67 million and Package 5 – PLN 387.73 million (Figure 2). It should be stressed that in Package 4 most funds have been allocated to the protection of breeding habitats of birds – PLN 401.9 million. In the case of protecting breeding habitats of birds, so far, most funds are spent on protecting habitats of the black-tailed godwit, common snipe, common redshank and northern lapwing. It must also be added that, in Poland, among the above-mentioned bird species, the most disadvantageous situation applies to the northern lapwing population whose state amounts to 40% of that in 2000 [EPI 2018].

As mentioned at the beginning, currently 79,490 beneficiary farms implement the Measure[4]. Most farms use support under Packages 1 and 2 - 23,571 and 23,715 farms, respectively. The share of these farms therefore constitutes 59.5% of all beneficiary farms. Slightly fewer beneficiary farms receive support under Packages 4 and 5 – 22,589 and

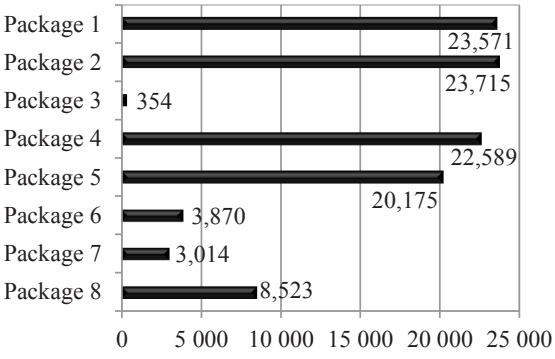

Figure 3. Number of supported farms participating in individual packages as part of the Agri-environmental-climate Measure under the RDP 2014-2020 (as of 31.12.2017)

Source: own study based on data of the MARD [MRiRW 2018b]

[4] It should be stressed that the number of beneficiaries of the Agri-environmental-climate Measure under the RDP 2014-2020, who have not participated in the Agri-environmental programme under the RDP 2007-2013 before is 11,168 (as of 31.12.2017).

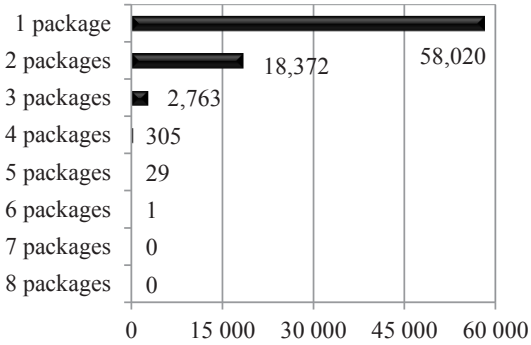

Figure 4. Number of supported beneficiary farms depending on the number of implemented packages as part of the Agri-environmental-climate Measure under the RDP 2014-2020 (as of 31.12.2017)

Source: own study based on data of the MARD [MRiRW 2018b]

20,175 farms, respectively. It must be added that Packages 6 and 7 are used in total by 6,884 farms while Package 8 – by 8,523 farms (Figure 3).

By far, most beneficiaries implement one package (58,020), which accounts for 73% of all beneficiaries. On the other hand, 23.1% (18,372) of beneficiaries implement two packages at a time, while 3.5% (2,763) beneficiaries – three packages. In turn, 4-6 packages are implemented by 335 beneficiaries, which accounts for 0.4% of all beneficiaries. No beneficiary implements seven-eight packages at a time (Figure 4).

ASSESSMENT OF THE FUNCTIONING OF BENEFICIARY FARMS OF THE AGRI-ENVIRONMENTAL-CLIMATE MEASURE UNDER THE RDP 2014-2020 AGAINST A BACKGROUND OF OTHER FARMS

Beneficiary farms with field crops, when compared to analogous farms, had, on average, an area of UAA lower by 15.4 ha, while those with mixed production – by 9.1 ha (Table 1). On the other hand, entities of beneficiaries with animals fed with roughage had a similar area of UAA. In all analysed farming types, beneficiary farms had a lower share of leased land.

Among the analysed groups of farms, there are differences with respect to the share of farms conducting the production in LFAs. Regardless of the type of production, the share of farms of beneficiaries, located in LFAs, was higher when compared to other analogous farms by 8.3% in the case of farms with animals fed with roughage, and by 18.5% with regard to farms with field crops.

The production potential of farms is also determined by total labour inputs per 1 ha of UAA and owned capital value. There were differences in labour inputs depending on the production type of farms. Farms of beneficiaries specialising in field crops and in mixed production were characterised by higher total labour inputs when compared to other analogous farms, by 10.8% and 5.8%, respectively. The situation was different as for farms with animals fed with roughage, where farms of beneficiaries had labour inputs per 1 ha of UAA lower by 12.1% in relation to other farms. Much greater differences were observed in the case of capital resources. In all three analysed production types, farms of beneficiaries had a lower capital value. A particularly high difference was recognised

Table 1. Production potential of analysed beneficiary farms and other farms in 2017

Specification	Farms of beneficiaries			Other farms		
	with field crops	with animals fed with roughage	with mixed production	with field crops	with animals fed with roughage	with mixed production
Utilised agricultural area (UAA)	51.5	32.6	33.1	66.9	31.8	42.2
Share of leased land [%]	30.3	27.5	25.5	36.7	32.0	43.2
Share of farms located in LFAs [%]	51.3	78.4	59.9	32.8	70.1	50.2
Total labour inputs per 1 ha of UAA [hours]	71.7	115.3	112.2	64.7	131.2	106.0
Capital value [thous. PLN]	650.7	595.6	596.9	762.8	812.6	725.9

Source: own study based on data from the Polish FADN [2017]

in the case of farms with animals fed with roughage, where capital resources of farms of beneficiaries were by 26.7% lower when compared to other farms. In the other two production types, these differences were smaller: 14.7% in farms with field crops and 17.8% in those with mixed production.

Based on an analysis of data contained in Table 2, it may be found that farms of beneficiaries, due to environmental constraints, were characterised by a lower production intensity. Regardless of the production type, these farms incurred lower total costs per 1 ha of UAA. Particularly with respect to farms with animals fed with roughage, beneficiaries had total costs lower by 39% when compared to other farms. In the other two production types, this relation was lower and did not exceed 23%. The same direction of differences has been observed in relation to incurred direct costs per 1 ha of UAA.

Irrespective of the production type, a lower level of production intensity in beneficiary farms, than in other farms, was reflected in lower productivities of production factors –

Table 2. Production intensity in analysed beneficiary farms and other farms in 2017

Specification	Farms					
	of beneficiaries			other		
	with field crops	with animals fed with roughage	with mixed production	with field crops	with animals fed with roughage	with mixed production
Total costs [thous. PLN/ha], including:	3.5	3.8	4.9	4.3	6.2	6.4
– direct costs	1.5	1.6	2.8	1.9	3.2	3.3

Source: see Table 1

labour, land and capital (Table 3). The least advantageous is a comparison of farms with animals fed with roughage, as the land productivity of beneficiary farms was lower by 46.6%, labour productivity by 38.7% and capital productivity by 8.6% when compared to other farms. The lowest differences in productivity were observed in farms with field crops where land productivity was lower by 10.9%, labour productivity by 19.7% and capital productivity by 8%.

Important information on the economic situation of individual groups of farms is provided by an analysis of their income per 1 FWU (Table 4). In farms of beneficiaries, this index is lower in all types of farms when compared to other farms: with field crops (by 19.7%), with animals fed with roughage (by 38.7%) and with mixed production (by

Table 3. Productivity of production factors in analysed beneficiary farms and other farms in 2017

Specification	Farms					
	of beneficiaries			other		
	with field crops	with animals fed with roughage	with mixed production	with field crops	with animals fed with roughage	with mixed production
Land productivity [thous.PLN/ha UAA]	4.1	4.7	5.6	4.6	8.8	7.0
Labour productivity [thous. PLN/AWU]	121.8	87.3	105.4	151.6	142.3	139.1
Capital productivity [%]	32.6	25.9	30.9	40.6	34.5	40.4

Source: see Table 1

Table 4. The economic situation, share of operating subsidies in farm income and development opportunities of analysed farms of beneficiaries and other farms in 2017

Specification	Farms					
	of beneficiaries			other		
	with field crops	with animals fed with roughage	with mixed production	with field crops	with animals fed with roughage	with mixed production
Farm income per 1 FWU [thous. PLN]	121.8	87.3	105.4	151.6	142.3	139.1
Share of operating subsidies in income per 1 FWU of the farm	74.8	67.9	74.7	61.4	35.6	55.1
Share of subsidies received as part of the Measure in income per 1 FWU	16.4	16.4	16.1	0	0	0
Net investment rate [%]	19.2	61.1	42.8	-8.3	34.3	4.2

Source: see Table 1

24.2%). In farms of beneficiaries, in all types of farms, about 16% of income came from subsidies received as part of the Measure in income of FWU.

Despite the worse economic situation of beneficiary farms, they still invested financial resources to an extent guaranteeing an increase in the value of possessed fixed assets, as evidenced by their positive net investment rate. It must be added that this index is much higher in beneficiary farms when compared to other analogous farms.

CONCLUSIONS

1. So far, most funds under the Measure have been spent on Packages 4. "Valuable habitats and endangered bird species in Natura 2000 sites". By far, most funds have been spent on protecting breeding habitats of birds including: the black-tailed godwit, the common snipe, the common redshank and the northern lapwing, i.e. birds whose population has recently decreased significantly in the country. This situation is optimistic because it can improve the farmland bird index in the agricultural landscape and consequently improve the biodiversity of rural areas in the country.
2. As part of the Measure, most farms use support under Packages 1. "Sustainable farming" and 2. "Protection of soils and waters". It should be emphasized that these are special packages from the point of view of protection of the natural environment and climate. They induce the beneficiary farms to rationally use natural resources through appropriate crop rotation and selection, the optimization of fertilization and the improvement of soil organic matter balance. The share of these farms constitutes 59.5% of all beneficiary farms.
3. On the basis of the Polish FADN in 2017, farms belonging to beneficiaries of the Measure against a background of other farms with the same production type, due to environmental constraints, were characterised by a lower production intensity and, as a consequence, by a lower productivity of production factors. Regardless of the production type, these farms incurred lower total costs, including direct costs per 1 ha of UAA. Smaller income per 1 FWU was observed on these farms. However, it must be stressed that despite the worse economic situation of farms of beneficiaries, they had a positive net investment rate. These farms invested financial resources to a level guaranteeing an increase in the value of possessed fixed assets. This situation proves their pro-development stance.

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Wniosek Rozporządzenie Parlamentu Europejskiego i Rady ustanawiające przepisy dotyczące wsparcia na podstawie planów strategicznych sporządzanych przez państwa członkowskie w *ramach wspólnej polityki rolnej (planów strategicznych WPR) i finansowanych* z *Europejskiego Funduszu Rolniczego Gwarancji (EFRG) i* z *Europejskiego Funduszu Rolnego na rzecz Rozwoju Obszarów Wiejskich (EFRROW) oraz uchylające rozporządzenie Parlamentu Europejskiego i Rady (UE) nr* 1305/2013 *i rozporządzenie Parlamentu Europejskiego i Rady (UE) nr* 1307/2013 (Proposal for a Regulation of the European Parliament and of the Council establishing rules on support for strategic plans to be drawn up by Member States under the Common agricultural policy (CAP Strategic Plans) and financed by the European Agricultural Guarantee Fund (EAGF) and by the European Agricultural Fund for Rural Development (EAFRD) and repealing Regulation (EU) No 1305/2013 of the European Parliament and of the Council and Regulation (EU) No 1307/2013 of the European Parliament and of the Council. COM (2018) 392 final.

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GOSPODARSTWA BIORĄCE UDZIAŁ W DZIAŁANIU ROLNOŚRODOWISKOWO-KLIMATYCZNYM NA TLE POZOSTAŁYCH GOSPODARSTW

Słowa kluczowe: gospodarstwo rolne, działanie rolnośrodowiskowo-klimatyczne w PROW 2014-2020, dochód z gospodarstwa rolnego w przeliczeniu na 1 FWU

ABSTRAKT

Postępujące skutki zmian klimatu oraz nadal utrzymujące się negatywne trendy w stanie środowiska przyrodniczego wielu obszarów wiejskich w Unii Europejskiej, jak i na całym świecie powodują, że w sektorze rolnictwa wciąż istnieje pilna potrzeba prowadzenia działań w kierunku ochrony klimatu i środowiska przyrodniczego. Celem artykułu jest opis stanu wydatkowania środków oraz charakterystyka gospodarstw beneficjentów działania rolnośrodowiskowo-klimatycznego w PROW 2014-2020. Oceniono także funkcjonowanie gospodarstw beneficjentów tego działania na tle pozostałych gospodarstw w 2017 roku. W analizie porównawczej gospodarstw beneficjentów i pozostałych uwzględniono gospodarstwa z uprawami polowymi, z produkcją wielostronną i ze zwierzętami żywionymi paszami objętościowymi, gdyż odgrywają one ważną rolę w rolnictwie polskim. W ramach działania ponad połowa gospodarstw korzystała ze wsparcia w ramach pakietu 1 i 2. Udział gospodarstw realizujących jednocześnie 3 pakiety i więcej był znacznie mniejszy. Przeprowadzona analiza wskazuje m.in., że gospodarstwa beneficjentów charakteryzują się gorszą sytuacją ekonomiczną, wyrażoną dochodem w przeliczeniu na 1 FWU (*Family Work Unit*).

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